Assessment of Percutaneous Fasciotomy in the Management of Dupuytren’s Contracture

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This prospective study of the treatment of Dupuytren’s Contracture in 78 hands has been designed to investigate the role of subcutaneous fasciotomy. The results suggest that in hands where the contracture is predominantly at the metacarpophalangeal joint, then percutaneous fasciotomy is of value.

Ten years before Dupuytren’s original thesis (1834) Sir Astley Cooper (1823) described the use of fasciotomy to secure the release of contracted fingers. Since this time the use of various techniques of fasciotomy has tended to drift in and out of fashion. There has been little objective evidence to help indicate the conditions where fasciotomy is of value in the treatment of Dupuytren’s Contracture. In common with other more radical techniques it is almost impossible to evaluate fasciotomy because the varying studies are difficult to compare. In order to indicate the role of subcutaneous fasciotomy in Dupuytren’s Contracture the range of movement of all joints in the affected fingers of 78 hands in 73 patients before and after operation have been measured.

Method

Using a finger goniometer the active range of flexion and extension of the metacarpophalangeal (MCP), proximal interphalangeal (PIP) and distal interphalangeal (DIP) joints were measured. Under regional anaesthesia (ulnar and median nerve blocks with 0.5% Bupivacaine solution) a percutaneous fasciotomy was performed at multiple sites proximal to the distal palmar crease. The one-sided fasciotome was inserted parallel to the skin and the blade turned onto the bands which were held under tension against the knife.

Skin tears were accepted, dressed with paraffin gauze and allowed to heal spontaneously. The patients were all instructed in a simple passive exercise regime to be commenced immediately whilst still under the influence of the long acting regional anaesthetic.

Skin tears were tended by the district nurse, and checked at two weeks in the clinic. Otherwise follow up was restricted to three months and greater than one year, for the purpose of this study.

Results

A total of 107 fingers in 78 hands were included in the trial. Patients were excluded if the operation failed to produce a satisfactory initial correction and this group referred on to fasciectomy at a later date. The mean age was 62 years (range 36-80 years) with a male: female ratio of 7.2: 1. The follow up intervals were three and an average of fourteen months (range 12 to 19 months).

The fingers were categorised depending whether the proximal interphalangeal joint contracture was greater or less than that of the metacarpophalangeal joint. Metacarpophalangeal joint contracture was predominant in 53.6% of fingers and proximal interphalangeal joint contracture in 41.7%. The remainder had both joints equally involved.

The effect of delay between onset of contracture and surgery is shown in Figure 1. The curves reflect the average improvement of each group over the total period of study. The slopes of the curves are all similar except in the case of the proximal interphalangeal joint dominant fingers treated less than 5 years after onset of the disease.

Figures 2 and 3 show the improvement in maximum active extension at three and fourteen months in the two categories. The immediate post-operative results were
Discussion

The results indicate that the presence of proximal interphalangeal joint contracture in excess of metacarpophalangeal joint contracture then percutaneous fasciotomy is an unsatisfactory procedure. In both groups the proximal interphalangeal joint remains significantly contracted and deteriorates rapidly towards the pre-operative level. The metacarpophalangeal joint improves in both dominant groups and in its own group the improvement is marked and well maintained within the study period.

These findings probably reflect the operative technique where fasciotomy is restricted to proximal to the distal palmar crease. This precaution has been successful in excluding neurovascular complications, but will always favour correction at the metacarpophalangeal joint and, not surprisingly, influences the proximal interphalangeal joint little. Figure 1 however does indicate that early surgery does favour some improvement in proximal interphalangeal joint contracture in proximal interphalangeal joint disease treated early. This may well be because secondary joint contraction of capsule and collateral ligaments has not yet developed.

Comparison with other series is difficult because data is presented in many differing forms. Rodrigo (1976) studied the long term results of 135 patients from a series of 359 cases undergoing fasciotomy or fasciectomy. Unfortunately, the cases under scrutiny were those who had presented with further problems. Despite this bias they found good metacarpophalangeal correction at 6 years following fasciotomy in metacarpophalangeal joint dominant disease. Howard (1959) suggests similar findings although there are no figures to support his contention.

Our results seem to indicate a role for subcutaneous fasciotomy in metacarpophalangeal dominant disease particularly if proximal interphalangeal joint involvement has been relatively recent and mild.

This is not an uncommon finding in the elderly where indications for complex surgery may be limited. The technique requires little formal rehabilitation which makes it popular with the elderly when visiting hospital may be difficult and co-operation with physiotherapy tedious. In the presence of medical contra-indications to general anaesthesia it offers a very real alternative for restoring reasonable hand function for a useful period of time.

References

DUPUYTREN, G. Permanent retraction of the fingers, produced by an affection of the palmar fascia. Lancet (1834) 2, 222-225.